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The Effect of Human Development Index Components and Poverty on Economic Growth in Yogyakarta

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Abstrack. Economic growth is the most important component of Indonesia's national development because economic growth can be said to be a component that plays an important role in providing an assessment of economic performance. This research aims to determine the influence of the components of the human development index and poverty on the economic growth of the districts/cities of D.I Yogyakarta. This research uses secondary data sourced from the official website of the Central Statistics Agency. The data used is panel data, namely a combination of time series and cross section data. The appropriate model is the Random Effect Model. The variables used in this research are average years of schooling, life expectancy, per capita expenditure, number of poor people and minimum wage. The results of this research are that the life expectancy variable has a positive and significant effect on economic growth, per capita expenditure has a positive and significant effect on economic growth, while the average length of schooling has no effect on economic growth, the number of poor people has no effect on economic growth and the minimum wage has no effect. on the economic growth of the districts/cities of D.I Yogyakarta. Each independent variable significantly influences the dependent variable simultaneously.

Keywords: Human Development Index, Economic Growth, Poverty and Development, Regional Economics, Yogyakarta Economy.

1. INTRODUCTION

The improvement of the economy is always given priority as it indicates an increase in per capita income. According to the Kuznets Theory, the goal of economic growth is to enhance a country's capacity to provide various goods for its population. Technological advancements, organizational changes, and recognized ideologies have led to this increased capability (Jingan 2010).

A country's economy may not always remain consistent but may also experience fluctuations. The best way to assess changes in the economic status of a society is by examining economic activity data. According to Pramesthi (2012), "Increasing productivity and creativity enable society to acquire and manage the resources needed for economic growth." Conversely, "when GDP (Gross Domestic

Product) increases, it can be interpreted as economic growth, without considering whether structural economic changes have occurred or whether a greater or lesser increase compared to the population has taken place."

A critical component of a nation's wealth is its human resources because people actively participate in production, increase wealth, develop natural resources, and build political, social, and economic organizations to develop the nation. The extent to which a region achieves human resource development goals is measured using the Human Development Index (HDI). Close connections are required between human development and economic growth. Ultimately, efforts aimed at improving human development through increased productivity and productive endeavors will enhance income.

The Human Development Index comprises three components: measured by life expectancy at birth, which relates to health; average years of schooling, which relates to education; and per capita adjusted expenditure (PPP), which relates to a decent standard of living.

The Human Development Index based on education levels continues to increase every year in the regencies/cities of Yogyakarta Special Region. For the youngest age group, the average years of schooling were at their lowest in 2015 in Gunungkidul Regency, with an average of approximately 6.46 years of primary school education. Meanwhile, for the oldest age group, the highest average years of schooling occurred in 2021 in Yogyakarta City, with an average of 11.72 years of education, approximately up to high school.

One factor that influences economic growth is poverty, which has been a long-standing phenomenon, and various efforts have been made to reduce it. Poverty has become a critical issue for the development of developing countries.

The number of poor people fluctuates. The number of poor people in the regencies/cities of Yogyakarta Special Region is still quite significant, despite an increase in economic growth. The smallest number of poor people was in Yogyakarta City in 2019, with 29,000 residents. Meanwhile, the largest number of poor people was in Bantul Regency in 2015, with 160,000 residents still living in poverty.

Understanding the issue of poverty often requires efforts to define, measure, and identify the root causes of poverty, which forms the basis for poverty alleviation policies. A considerable amount of research has been conducted to categorize the poor and study the factors that cause poverty, but this research has not reached a definitive conclusion. This is because poverty has many aspects and can be caused by various different conditions (Rah Adi Fahmi, Setyadi, and Suiro 2018).

2. THEORETICAL STUDIES

The Human Development Index (HDI) is an indicator used to measure the progress of a country or region in three main aspects of human development: health, education, and standard of living. HDI provides a more comprehensive picture of the development of a society than merely using economic income. It reflects to what extent the population of a region can live a healthy life, receive adequate education, and have access to a decent standard of living (Yin et al., 2023).

On the other hand, poverty is a condition in which individuals or groups of people lack adequate access to resources, basic services, or income to meet their basic needs, such as food, clothing, housing, and education (Orleck, 2023). Poverty is often measured by income levels but can also refer to social and economic inequality and access to healthcare and education services. Poverty alleviation is an important goal in social and economic development because it reduces inequality and improves the standard of living for communities.

Meanwhile, economic growth refers to the increase in the economic output of a country or region over time. It can be measured by examining changes in Gross Domestic Product (GDP) or national income (Razzaq et al., 2023). Stable and sustainable economic growth can result in an increase in per capita income and create better economic opportunities for the population. However, uneven economic growth or growth that is not accompanied by poverty reduction and improved quality of life can lead to greater inequality.

These three concepts are often interrelated in the context of development. Strong economic growth can enhance the resources available to improve HDI and reduce poverty levels. Conversely, efforts to reduce poverty and enhance HDI can also contribute to more sustainable economic growth, as a healthier and educated population has higher productivity potential. Therefore, a comprehensive understanding of the relationship between HDI, poverty, and economic growth is crucial in designing effective development policies to enhance the quality of life for communities.

3. METHOD

In this study, secondary data from a panel dataset were utilized, comprising a combination of time series data from 2015 to 2021 and cross-sectional data from five regencies/cities in the Special Region of Yogyakarta.

Secondary data were collected by data collection agencies such as the Central Statistics Agency (Badan Pusat Statistika or BPS) and distributed to data users according to Maharany (2012). This research selected five regencies/cities in the DI Yogyakarta Province as the research locations because they had adequate data and were complete and relevant to the research subject.

The operational definition of economic growth is determined by using the Gross Regional Domestic Product (PDRB), which is the total production and services of a country. Economic growth is considered an indicator of the success of economic development. Economic growth data used in this study spanned from 2015 to 2021 and was expressed as a percentage.

Average years of schooling refer to the coverage of students calculated after 25 years. The calculation of years of schooling has minimum and maximum requirements set by BPS, with a minimum requirement of 0 years and a maximum of 15 years. Data on average years of schooling are recorded in years. Average life expectancy for each individual is known as "life expectancy." The minimum and maximum ages are 20 and 85 years. Life expectancy data is recorded in years.

Per capita expenditure is the amount of money spent by each person based on purchasing power parity, with the lowest value being IDR 1,007,436 and the highest being IDR 26,572,352. Per capita expenditure data is expressed in thousands of Indonesian Rupiah.

The number of people below the poverty line is referred to as poverty. Data used to estimate the number of poor people spanned from 2015 to 2021. The data on the number of poor people is expressed in thousands. Minimum wages that companies must pay to their employees in compliance with local government standards and policies are known as minimum wages. Minimum wage data from 2015 to 2021 were used in this research.

This study employed a methodology that combines time series and cross-sectional data. Panel data regression offers several advantages. It provides more data, which means more degrees of freedom, and it has the capacity to address problems that arise from the omission or elimination of variables.

4. RESULTS AND DISCUSSION

4.1 Results

Regression models are used to determine which model among the three equation models, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM), should be appropriately used. This needs to be tested with a panel data regression model. Panel data regression is used to examine the influence of Average Years of Schooling, Life Expectancy, Per Capita Expenditure, the number of people below the poverty line, and Minimum Wage.

$$Y = \beta_0 + + \beta_1 X_1 it + \beta_2 X_2 it + \beta_3 X_3 it + \beta_4 X_4 it + \beta_5 X_5 it + \mu i + eit$$

Explanation:
Y = Economic growth
X1 = Average years of schooling
X2 = Life expectancy
X3 = Per capita expenditure
X4 = Number of people below the poverty line
X5 = Minimum wage
β_0 = Constant
μi = Random Error Term
i = Observation
t = Time

Further description of the panel data is shown in table 1 below.

Table 1 Description of Panel Data

Variable	Mean	Std.Dev
Average years of schooling	9.425714	1.612946
Life Expectancy Rate	74.384	.5560956
Expenditure per capita	9.474103	.2910773
Number of Poor People	97.84143	40.95447
Minimum Wage	1551857	258754.3

Then the Random Effect Model is shown in the table below.

Tabel 2 Random Effect Model

Variable	Coefficient	Prob
Average years of schooling (X1)	-9.637367	0.009
Life Expectancy Rate (X2)	10.56336	0.010
Expenditure per capita (X3)	50.97472	0.010
Number of Poor People (X4)	-.0453261	0.075
Minimum Wage (X5)	-.0000126	0.001

$$LnYit = \beta o + \beta 1 LnX1it + \beta 2 LnX2it + \beta 3 LnX3it + \beta 4 LnX4it + \beta 5 LnX5it + eit$$

LnTK = -1149.37 + -9.637367LnX1 + 10.56336LnX2 + 50.97472LnX3 - .0453261LnX4 - .0000126LnX5 + eit

Keterangan:
β = Koefisien intersep
X1 = Rata-rata lama sekolah
X2 = Angka harapan hidup
X3 = Pengeluaran per kapita
X4 = Jumlah penduduk miskin
X5 = Upah minimum

While the Chow Test results are shown in the following table.

Table 3 Uji Chow

Test	Prob	Information
Chow	0.4139	Common Effect Model

The Chow test is used to choose the best estimation model between the common effect or fixed effect model. Then the Chow test is carried out with a probability of 0.05. Based on the table above, the chow test results using the common effect model in this study show that the cross-section F probability value of 0.4139 is greater than the significant level of 0.05 (0.4139> 0.05). This means that in this study the common effect estimation model is better than the fixed effect model. Next perform the Hausman test.

Furthermore, conducting the Hausman Test, the results of the Hausman test are shown in the table below.

Table 4 Hausman Test

Test	Prob. Chi2	Information
Hausman	0.4206	Random Effect Model

The Hausman test is used to select the best estimation model between fixed effect and random effect using a significant level of 0.05. Based on the table above, the probability value is greater than the significant level of 0.05 (0.4206 > 0.05) which means that the random effect model results are appropriate for the Hausman test.

Then perform the LM test, as for the results of the LM test as shown in the table below.

Table 5 LM Test

Test	Prob Chi2	Information
LM	1.0000	Random Effect Model

Based on the table above, the probability value is greater than the significant level of 0.05 (1.0000> 0.05) which means that the Random effect model is suitable for the LM test. Next do the Simultaneous Test (F Test), as for the simultaneous test results, as shown in the table below.

Table 6 F test

F Count	F-Table	Prob.	Alpha
11.73	2.701	0.0387	0.05

This test is used to determine whether all independent variables together (simultaneously) can affect the dependent variable. Based on the Prob value. The result is 0.0387. if the p value <0.05 then the F test rejects H0 at the alpha level of 0.05. While the calculated F value is 11.73 and the F table value df = (k-1, n-k-1) alpha 0.05 so that df = (5-1, 35-5-1) produces a number of 2.701 which means the value of F count> F table. Therefore, each independent variable significantly affects the dependent variable simultaneously.

Then proceed to the Determination Coefficient Test (R^2), as for the results of the Determination Coefficient Test (R^2) are as follows.

Table 7 R^2 Test

Test	Result
Coefficient of Determination	0.2880

The coefficient of determination is to explain the proportion of the dependent variable by the independent variable that can be explained in the model. The test shows the coefficient of determination (R2) of 0.2880 which describes that the variables in this study can contribute 28.8% to the economic growth of the district / city of Yogyakarta. Other variables contribute to the other 71.2%

After that, then proceed to the Apriori Test test. as for the results of the Apriori Test, they are shown in the table below.

Table 8 Apriori Test

Variable	Hypothesis	Result
X1	Positive	Negative
X2	Positive	Positive
X3	Positive	Positive
X4	Negative	Negative
X5	Positive	Negative

The model test, known as the a priori test, is used to determine whether the hypotheses and research findings are consistent with each other. In the a priori test, the researcher must compare how economic theory correlates with the research variables. Based on the a priori test results, it can be concluded that the average years of schooling (X1) does not match the hypothesis, life expectancy

((X2) matches the hypothesis, per capita expenditure (X3) matches the hypothesis, the number of poor people (X4) matches the hypothesis and the minimum wage does not match the hypothesis.

Then the Partial Test (T Test) is carried out, as for the results of the Partial test, namely as follows.

Table 9 T test

	Koef	Prob	T count	T table
X1	-9637367	0.009	-2.60	2.06
X2	10.56336	0.010	2.58	2.06
X3	50.97472	0.010	2.59	2.06
X4	-.0453261	0.075	-1.78	2.06
X5	-.0000126	0.001	-3.30	2.06

In the table above, several pounds can be described, namely. first Variable X1 (Average length of schooling), in this variable the significant assumption of t count> t table is proven that the probability value of the Average length of schooling variable is not significant because t count -2.60 and t table 2.06390. The coefficient value is -9.637367 and the probability is 0.009.

Second Variable X2 (Life expectancy), in this variable it is assumed that t count> t table, it is proven that the probability value of the life expectancy variable is significant because t count 2.58 and t table 2.06390. The coefficient value is 10.56336 and the probability is 0.010. Third Variable X3 (Expenditure per capita), this variable assumes that t count> t table, it is proven that the probability value of the variable Expenditure per capita is significant because t count 2.59 and t table 2.06390. The coefficient value is 50.97472 and the probability value is 0.010.

Fourth Variable X4 (Number of poor people), this variable assumes that t count> t table, it is proven that the probability value of the variable Total population is not significant because t count -1.78 and t table 2.06390. The coefficient value is -.0453261 and probability 0.075. Fifth, namely Variable X5 (Minimum wage), this variable assumes that t count> t table, it is proven that the probability value of the minimum wage variable is not significant because t count -3.30 and t table 2.06390. The coefficient value is -.0000126 and the probability is 0.001.

4.2 Discussion

Based on the analysis conducted, it is evident that average years of schooling do not have a significant impact on the economic growth of the regencies/cities in DI Yogyakarta. This is because the calculated t-value < the tabulated t-value, with a calculated t-value of -2.06 and a tabulated t-value of 2.06390. The coefficient value is -9.637367, and the probability is 0.009, which is below 0.05. It is known that average years of schooling do not affect economic growth significantly. This indicates that a decrease or increase in the average years of schooling does not have a substantial influence on economic growth. This may be due to the fact that improvements in the quality of education have been ongoing for seven years. Another study (Prasetyo 2018) also found that average years of schooling do not have a significant impact on economic growth.

The analysis results show that life expectancy significantly affects the economic growth of the regencies/cities in DI Yogyakarta. The coefficient value is 10.56336, and the probability is 0.010, which is below 0.05, indicating a positive and significant effect. With a calculated t-value of 2.58 and a tabulated t-value of 2.06390, meaning the calculated t-value > the tabulated t-value, it is considered

significant. According to research (Handayani, Bendesa, and Yuliarni 2016), a high health index, which includes a high life expectancy, has a positive and significant effect on economic growth. This is because having a high life expectancy without corresponding skills can hinder regional development.

According to the analysis results, per capita expenditure significantly influences the economic growth of the regencies/cities in DI Yogyakarta. With a coefficient of 50.97472 and a probability of 0.010 indicating a positive impact. The calculated t-value is 2.59, and the tabulated t-value is 2.06390, showing that the calculated t-value > the tabulated t-value. This finding aligns with previous research (Sutrisna 2014). By reducing per capita expenditure, individuals can achieve a decent standard of living. If per capita consumption increases, production will also increase, and with this increase, economic growth will also rise.

The analysis results indicate that the number of people below the poverty line does not significantly impact the economic growth of the regencies/cities in DI Yogyakarta because the calculated t-value is -1.78, and the tabulated t-value is 2.06390, meaning the calculated t-value < the tabulated t-value. With a coefficient of -0.0453261 and a probability of 0.075, which is above 0.05. This is consistent with the research (Prodi et al. 2023), which concludes that poverty issues have a negative effect on economic growth. Poverty issues have a negative relationship with economic growth because relative poverty slows down economic development and limits opportunities to maximize available resources.

In the analysis conducted, minimum wage is found to have no significant impact on the economic growth of the regencies/cities in DI Yogyakarta because the calculated t-value is -3.30, and the tabulated t-value is 2.06390. This means that the calculated t-value < the tabulated t-value. With a coefficient of -0.0000126 and a probability of 0.001, which is below 0.05. According to research conducted by Yosephina and Murtala (2019), rapid economic growth affects minimum wage determination. This is because faster economic growth can improve people's well-being and generate more job opportunities with decent wages.

5. CONCLUSION

The results of the t-test or partial test for the variables average years of schooling, the number of people below the poverty line, and minimum wage have non-significant values, indicating that the values of the life expectancy and per capita expenditure variables show significant results in relation to economic growth.

The testing of the average years of schooling variable against the economic growth of the regencies/cities in DI Yogyakarta shows a partially negative and non-significant impact. This is because the calculated t-value < the tabulated t-value, with a calculated t-value of -2.06 and a tabulated t-value of 2.06390. The coefficient value is -9.637367, and the probability is 0.009, which is below 0.05. Therefore, it can be concluded that average years of schooling do not significantly affect economic growth.

In the test of life expectancy against economic growth in the regencies/cities of DI Yogyakarta, it shows a partially positive and significant impact. This is because the calculated t-value is 2.58, and the tabulated t-value is 2.06390, which means that the calculated t-value > the tabulated t-value. The coefficient value is 10.56336, and the probability value is 0.010, indicating that it is below 0.05. Therefore, it can be concluded that life expectancy has a significant impact on economic growth, in line with the proposed hypothesis.

In the test of per capita expenditure against economic growth in the regencies/cities of DI Yogyakarta, it shows a partially positive and significant impact. This is because the calculated t-value is 2.59, and the tabulated t-value is 2.06390, indicating that the calculated t-value > the tabulated t-value. With a coefficient of 50.97472 and a probability value of 0.010, it can be concluded that per capita expenditure has a significant impact on economic growth, consistent with the proposed hypothesis.

In the test of the number of people below the poverty line against economic growth in the regencies/cities of DI Yogyakarta, it shows a partially negative and non-significant impact. This is because the calculated t-value is -1.78, and the tabulated t-value is 2.06390, indicating that the calculated t-value < the tabulated t-value. With a coefficient of -0.0453261 and a probability of 0.075, which is above 0.05, it can be concluded that the number of people below the poverty line does not significantly affect economic growth.

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